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DROWNING

Historical—Statistical.
Methods of Resuscitation
(*Illustrated*)



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DROWNING

HISTORICAL

That drowning was probably a most frequent cause of accidental death in the primitive days of man, when like other animals he sought the drinking place and the swimming hole, is most probable, and is supported by Ethnological observations. That the awe and horror, which caused the early man to stand inactive beside his drowned dead is in a great measure, still existent in the heart of modern man, is proven by every day observation; because where they are not definitely instructed, those measures of resuscitation which are taught by the experience of Life Saving Crews, are neglected by the general public.

The first reliable history of a resuscitation from drowning was that performed by M. Reamer in Switzerland. This was reported to the French Academy of Sciences and translated into English by Dr. Crogan in 1773. About this time Dr. Fothergill published his "Physical Dissertation on Drowning," which was read before the Royal Society in England. In 1773, the first society for the rescue of those apparently drowned was instituted at Amsterdam, Holland. In 1774, Dr. Crogan's translation of Reamer's paper, together with Crogan's success in resuscitating those apparently drowned, enlisted the sympathy of Dr. Hawes and these two gentlemen, with thirty-two of their friends, organized the Royal Humane Society which appointed Dr. John Mullwood as their first physician, and proceeded to establish stations throughout the empire to save the lives of those in a state of suspended animation due to apparent drowning.

At the end of one year, they exhibited before the King ten persons who had been resuscitated by the working members of the Society. The youngest of these, a boy of ten, had been under the water fifteen minutes and had not received any expert assistance for upward of forty minutes.

At the first sermon preached on the Anniversary of the Establishment of the Royal Humane Society, the discourse contained the following statements:

"As we therefore have opportunity, let us do good to all men." "Many countries have been supplied with apparatus necessary to restore suspended animation." The first statement is as applicable today as it was then.

From the establishment of these societies, have grown the government Life Saving Services of the present time, which are doing such heroic work, with the scant measures at their command, to conserve human life.

How little advance in ages has been made in the methods used to resuscitate the apparently drowned, is mutely told in the vast array of figures which mount yearly throughout the world, as the truly horrifying statistics of death, due to this cause.

STATISTICS

In 1907 seven thousand (7000) lives were lost in the United Kingdom (exclusive of Ireland and the Colonies). For the same year, eight thousand (8000) lives were lost in the United States. This includes the states outside the registration area where statistics could be secured.

It is estimated that there are fifteen thousand (15,000) deaths due to drowning annually in the United States. That a large proportion of these lives could have been saved, were the subject of resuscitation of those apparently drowned more fully understood, and suitable apparatus available near the places where the accidents occurred, is undoubtedly true.

Our statistics show there are more drownings inland than at the seashore, or on the shores of the Great Lakes. The swimming in rivers, gravel pits, duck-ponds, always brings a tremendous toll of deaths every year. Then, too, we must not forget the drowning of babies and small children by falling into tubs or pails of water, or the open cistern. Only extreme care and diligence on the part of individuals can prevent this. Drowning accidents cannot be completely eliminated, but they can be materially reduced. Unavoidable accidents occur that make it necessary to provide efficient methods of resuscitation of those who are apparently drowned.

In many cases where help was at hand and the victim was quickly recovered and brought to shore and subsequently died, had proper Mechanical Measures of resuscitation been at hand which any person of ordinary intelligence could use, animation would have been restored and a useful LIFE saved.

CAUSES OF DEATH IN DROWNING

Cause of drowning is literally defined as "suffocation by submersion in water."

Death from drowning is caused by asphyxia due to the accumulation of carbon dioxide in the blood and lungs, thereby depriving the vital brain centers of oxygen.

The amount of water in the lungs, or the depth of water in which the victim meets his fate, has no bearing on the direct cause of death, which is, lack of oxygen. A man therefore can drown as readily in a wash tub as he can in the ocean, provided he is deprived of air by closing the mouth and nose. This fact is demonstrated by the rapid recovery of the blood pressure when the water is removed from the lungs of animals which have been drowned for experimental purposes.

DEATH IN THE WATER

Death in the water may be from other causes than drowning, namely, Exhaustion, Fright, Syncope, Disease of the Heart, Apoplexy and Injuries. In these cases, drowning could only be, at most, considered as a secondary cause of death and the conditions under which death occurred are so complex that, in the minority of such cases only, are the lesions of pure asphyxia present.

Excluding death from the above causes and the superimposed deprivation of oxygen due to immersion in the water, mechanical measures of resuscitation by means of the LUNG-MOTOR is the best known means of resuscitation of those apparently drowned.

CONDITION OF APPARENTLY DROWNED

1. Muscles limp or in tonic contraction. 2. Face swollen, cyanotic, blue. 3. Eyes, bloodshot. 4. Respiration entirely absent or an occasional gasp. 5. Pulse, not apparent, or an occasional beat, may be full and strong. 6. Hands, may show evidence of a struggle. 7. The tongue may be congested, bluish or grasped between the teeth. 8. Body, cold. 9. The Mouth, Windpipe and Lungs contain a white mucus and sometimes fluid where the victim has inspired during his struggles. This water and mucus may be bloody in appearance due to the rupture of air vesicles in the lung by violent respiratory efforts.

WATER IN THE LUNGS

The water never reaches the air vesicles which are full of carbon dioxide and other gases, and for this reason, the lungs of a drowned person, when removed from the thorax and placed in water will float. It is a mistaken idea that the lungs ever become completely filled with water.

The stomach usually contains considerable water. This often is considered by the laymen as coming from the lungs.

MANUAL METHODS

The LUNG MOTOR has proven in the actual field of resuscitation that it is far superior to manual methods.

We ask no one to discard manual methods. Use what is at hand. Start manual methods immediately. To say that people have not been resuscitated by manual methods would be folly. But have a LUNG MOTOR available and give the patient the very best chance. Our directions picture plainly the proper method for the giving of manual methods. We say: Start manual methods at once and send for the LUNG MOTOR. We believe in manual methods if there are no other means of resuscitation available. But the use and the results from manual methods are limited.

Are manual methods efficient? We quote from the Commission on Resuscitation from Mine Gases, Technical Paper No. 77, United States Government Bureau of Mines:

"Because the amount of ventilation supplied by the best manual methods may be, in apnoeic subjects, close to a dangerous minimum, mechanical devices assuming more efficient respiration are desirable."

"The observations of Liljestraud, Wollin and Nilsson (in part with cadavers) likewise indicate that in a toneless body the exchange of air induced by artificial respiration would probably be considerably less than a man who was merely in apnoea."

The following table from the report gives the amount of air introduced into the lung by the manual methods compared with that of the LUNG MOTOR:

	Silvester Method C. c.	Schaefer Method arms flexed at the sides C. c.
Subject normal	500-600	500-600
Subject in Apnoea.....	150-200	125-200
	Schaefer Method arms stretched forward C. c.	Natural breathing at the same rate as the artificial C. c.
Subject normal	500-600	500-600
Subject in Apnoea	200-300

The LUNG MOTOR introduces into the lung at each respiration 750 c. c. of air, which is sufficient to maintain life, being, in fact, about 150 c. c. more than the patient normally

breathes; this 150 c. c. of air being used to counterbalance the natural resiliency of the lung in order to maintain the normal pressures in the thoracic cavity, and aid mechanically the restoration of the automatic mechanism of circulation by removing the obstruction in the lung, caused by the arteries crooking upon themselves when unconsciousness occurs.

THE "SYLVESTER METHOD"

Laying a man on his back and compressing the chest with rhythmic traction on the patient's arms will not remove water and mucus from the lungs and affords the minimum exchange of air of any method used as a restorative measure.

IT IS ABSOLUTELY ESSENTIAL THAT WATER BE REMOVED FROM THE LUNGS BEFORE AIR IS INTRODUCED, IF A FAVORABLE RESULT IS TO BE SECURED.

The same objection that applies to the "Sylvester Method" applies to the "Howard" — and various other modifications which have been devised at various times to increase the efficiency of this method.

THE "SCHAEFER" METHOD

(Also known as "Prone Pressure" Method)

Laying the patient on his stomach and making pressure over the loins about eighteen times a minute. (For detailed description of this method see page 10.)

This is the best known method of removing the gross water from the lungs and furnishes the greatest exchange of air of any of the manual methods.

IT IS ALSO A REGRETABLE FACT THAT THIS METHOD WILL ONLY REMOVE GROSS WATER, LEAVING THE LUNGS FILLED WITH SLIMY MUCUS WHICH INTERFERES WITH THE RESPIRATORY EXCHANGE OF GAS OR AIR SO NECESSARY TO THE RECOVERY OF THE PATIENT.

The mucus and slime can be removed only by a mechanical respirator, the LUNG MOTOR.

The efficient way in which this is done by the LUNG MOTOR and a sufficient exchange of air secured, is the greatest advance in the resuscitation of the apparently drowned that has been made in the history of the World.

MOUTH TO MOUTH METHOD

As commonly practiced by Life Savers, the Rescuer grasps the victim's tongue between his teeth and blows into his mouth. This is too unsanitary to be considered, except to state that it is more likely to fill the victim's stomach with air than it is to expand the lungs, and to call attention to the danger of transmission of dread diseases thereby, namely, Syphilis, Tuberculosis, etc., etc.

HOW TO REVIVE THOSE APPARENTLY DROWNED

When a person apparently drowned is removed from the water he must be treated with caution, perseverance and continuous energy if life is to be restored and this, in many cases, can be accomplished after long hours of unceasing work. Most authors in discussing the proflaxis of drowning, advocate that all persons be taught to swim, this is well and good but many expert swimmers are drowned each year because means of resuscitation are not at hand. Therefore one of the best Safe Guards against death due to drowning is the installation of LUNG MOTORS in every community where drowning accidents are liable to occur.

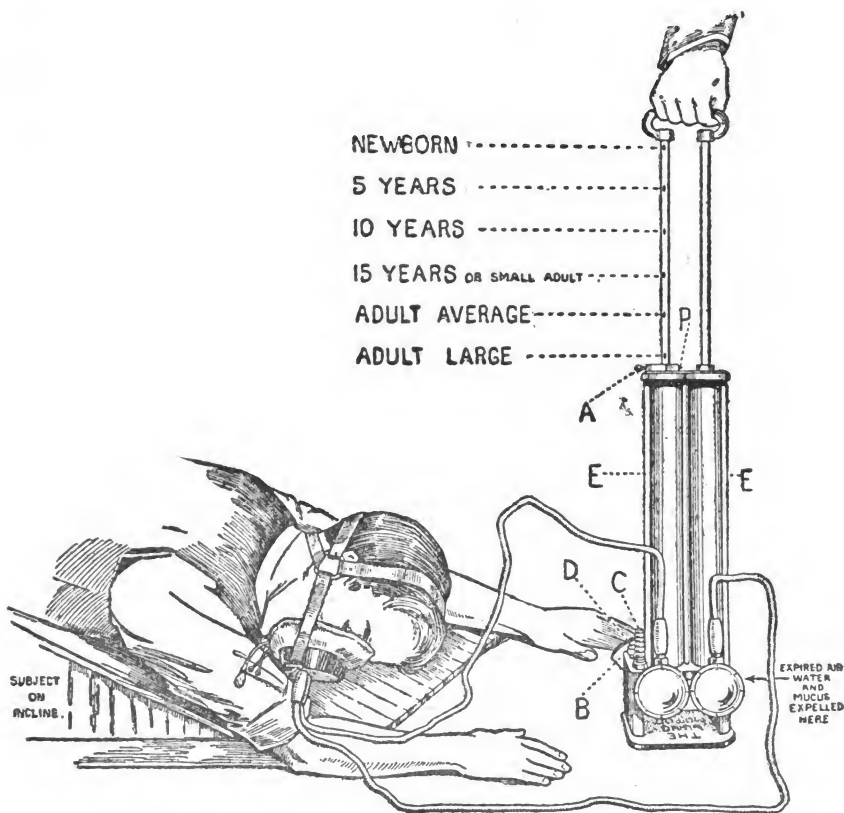
DIRECTIONS IN DROWNING

The body must be recovered as quickly as possible and artificial respiration immediately started, taking care, of course, to rid the mouth of all mucus, and the trachea and larger air passages of all water. Start manual methods at once, in the meantime sending for a physician and a LUNG MOTOR. Remember a human life depends upon your efforts; remember hours of your time is of no importance as compared to the life of the man you are saving. Do not give up for two or three hours, even if you have absolutely no indication of life. Under no circumstances give up if you have an indication until you have worked at least three hours without such an indication. Remember this in spite of instructions of any bystanders, whether they be laymen or members of the medical profession. You are attempting to save the life of a fellow-man, — you surely can do no harm, — you may do a great deal of good.

1. After the victim has been removed from the water, if he is to be carried to a place where he can be laid down, raise him to your shoulder with his stomach resting on it, and the head hanging down, this will allow some of the gross water in the air passages to run out, or by straddling him and then grasping

him around the waistline raising him two or three times until the gross water is removed. This operation should consume only a minute's time.

The LUNG MOTOR will remove the remaining water and mucus at the same time supplying a sufficient volume of air to resuscitate the victim.



This illustration shows the Lungmotor giving air only—Air contains 20.96 per cent oxygen—a small self-contained Oxygen generator is regularly supplied with the outfit and is described in the following paragraph.

2. Lay the victim on his stomach on an incline plane (many beaches have them especially constructed) or on the beach with his head toward the water, then pull out the tongue, remove foreign bodies from the mouth and proceed to remove the gross water from the lungs by using the "Schaefer Method" of artificial respiration.

HOW TO REMOVE WATER AND MUCUS FROM LUNGS "SCHAEFER" METHOD

3. For Respiration or Expelling Water from the Lungs lay the subject on his belly with arms extended as straight forward as possible, and with face to one side, so mouth and nose are free for breathing.

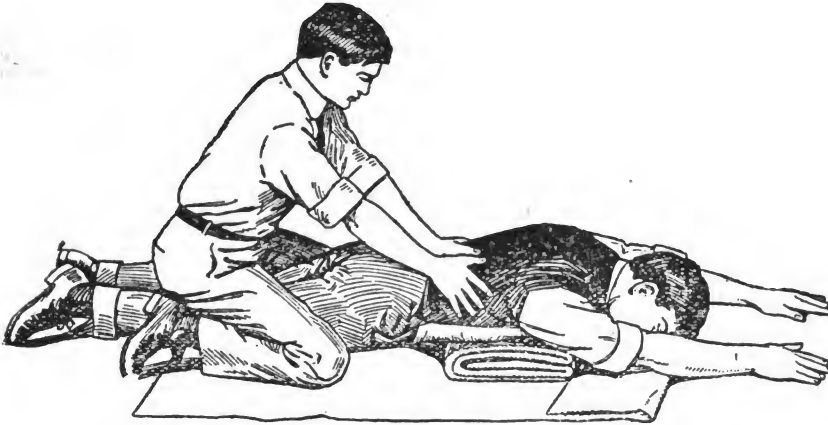


Fig. 1. This illustration shows Schaefer method first movement (inspiration)

Kneel, straddling the subject's thighs and facing his head; put the palms of your hands on the loins (on the muscles of the small of the back) with thumbs nearly touching each other, and with fingers spread over the lowest ribs. (Figure 1.)



Fig. 2. This illustration shows Schaefer method second movement (expiration)

With arms held straight, swing forward slowly (Figure 2) so that the weight of your body is gradually brought to bear upon the subject. This operation which should take not more than four seconds, must not be violent—internal organs may be injured. The lower part of the chest and also the abdomen are thus compressed and air and water are forced out of the lungs.

Now, immediately swing backward, (Figure 1) so as to remove the pressure but leave your hands in place. Lungs are thus supplied with fresh air. After not more than two seconds swing forward again.

Thus repeat deliberately about eighteen times per minute, the double movement of compression and release—a complete respiration in three to four seconds.

If the LUNG MOTOR is not available, continue to use this the best manual method of resuscitation.

This method should be continued indefinitely, or until the LUNG MOTOR arrives. When a LUNG MOTOR arrives it should be immediately used, and operation continued until all doubt as to the possibilities of reviving the patient is gone. If the least doubt exists, or if there is any indication of life being present, the operation should be continued indefinitely regardless of opinions from bystanders who might say there is no use in continuing. You have nothing to lose but time by continuing your work.

YOU ARE NOW READY TO APPLY THE LUNG MOTOR

A. Apply the face mask. B. Set the volume dial. C. Work the pump.

By this means of mechanical resuscitation any person is able to resuscitate an apparently drowned person if the victim is recovered in a reasonable time.

LENGTH OF LIFE WHEN DEPRIVED OF OXYGEN

You should always assume that life is present in every body removed from water within the critical period of oxygen want. Following the introduction of mechanical resuscitation, no superficial examination will reveal whether a person is alive or dead. Absence of a perceptible pulse or respiration does not signify your patient has succumbed. There is only one way to determine whether life is present and that is at least two hours' continued manipulation of artificial respiration.

Records of Resuscitation, after various periods of Anemia; of the brain centers which entails complete deprivation of oxygen, are given by various authors as follows:

Mayer 10 to 15 minutes. Stewart 5 to 16½ minutes. Hagen 10 to 11 minutes. Bartelli 10 to 15 minutes. Crile 6 to 7 minutes.

Recovery, where deprivation of oxygen was of only five minutes duration, is rapid and complete. After longer periods of oxygen want, psychoses due to impairment of brain centers occur in those cases that recover.

HOW LONG UNDER WATER AND BE REVIVED

If it were true that a person accidentally immersed in water was instantly deprived of oxygen, death would rapidly ensue in from 5 to 16 minutes, as shown by the above tabulation, but that this is not the case is amply born out by trustworthy evidence of every day observation by Life Guards on duty in various parts of the United States. There are several different factors which contribute to this condition, notably, age, physical condition and blood areation.

Buffon and Legallons have shown that just after birth dogs and other animals will live for half an hour or longer under water, and cases are on record in which life has been restored in new born children after seven, and it has been stated, after 23 hours of Asphyxia (Milne Edwards). In the new born child the condition is near that of a cold blooded animal. The case of the ten year old boy cited before in this paper, who was under water 15 minutes and received no attention for 40 minutes thereafter, is an example.

Common experience, as related by Life Saving Crews, indicate that about ½ hour under water is the maximum time in which a successful resuscitation can be secured and this only in a very small number of cases. That much better results could be obtained in saving the lives of the greater number who die and have not been under water ½ hour, is without doubt true, providing proper equipment for inducing mechanical resuscitation is available.

The saving, rescuing and preservation of life are essential matters of romance and, as such, some of the early writers on this subject must be forgiven the hear-say records which they have included in their otherwise valuable papers. The influence of Fothergill's paper, Physical Dissertation on Drowning, which was one of the leading factors in arousing the public mind and causing the establishment of the Royal Humane So-

ciety, records that Prchlinus has written a history of a woman who remained under water three days. The learned Filorfius, Librarian Keeper to the King of Sweden, gave a certificate of it. In fact, it was common belief among the Swedish peasantry at this time, that a person could live nine days under water.

Physical condition also plays an important part in determining how long a person can remain under water. A young healthy person can stay under water longer than an old person who, in all probability, is suffering from insufficient oxygenation of the blood and impaired heart action.

In the same manner an alcoholic would be more quickly affected than a total abstainer.

Condition of the blood: That a person, who is immersed in water suddenly, will, from fright, breathe rapidly and deeply is a well known fact; that a person who sinks in this state, is really in a partial state of apnoe, is also true. This one factor is a very potent reason why a person may exist under water longer than the experimental laboratory work on dogs indicates as possible.

In other words, the person is not really deprived of oxygen longer than the critical period indicated by laboratory experiments as compatible with continued life.

That the blood is not, in this condition, surcharged with oxygen has no negative bearing on the case because the over-ventilation of the lungs enables men to live as long as 8 minutes under water without immediate permanent effect, and this fact has been used by a leading sensational magician to enable him to awe the public with his performance of being immersed in a glass tank filled with water in full view of the audience, and so remain for many minutes.

From the above brief resume of the critical period in drowning, it is readily seen that the LUNG MOTOR, which is a physiologically correct instrument, is capable of securing very gratifying results.

SUCTION ON ACTION OF THE THORAX

The fact that it reestablishes the suction action of the thorax on the heart and great vessels in addition to supplying the lungs with the correct amount of fresh air, is the explanation of the wonderful results obtained by the use of the LUNG MOTOR. The unsatisfactory results of past experiments in mechanical resuscitation were due to a failure to attach to this phase of the subject the importance which it deserved.

THE LUNG MOTOR SIMPLE—EASILY UNDERSTOOD

The LUNG MOTOR is a simple and an easily understood device—always available—It is worked by hand—It can always give air, the kind you use every day—Works fast or slow—Instantly adjusted, from newborn to largest adult—You can increase or decrease air or air and oxygen volume instantly—You can carry it easily—It never gets out of order—No springs—No washers—No heavy charged tanks to become exhausted at the critical moment—It is safe and sure. It always gives the air into the lungs and not into the stomach. This is accomplished by means of a tube which is introduced into the gullet and a bulb on the end blown up by means of a hand bulb, and a soft rubber tube clamped by a clip. This tube is easily inserted because when pushed backward and down, guided by the under finger, it can go no place else but into the gullet.

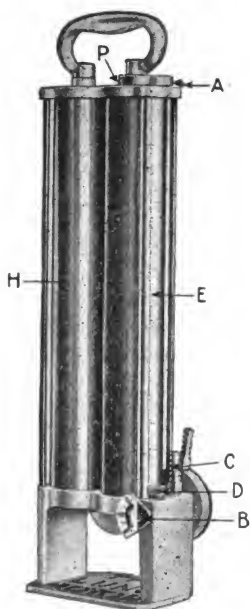
The LUNG MOTOR consists of two air pumps which operate in unison, yet are not connected in any way as far as the interchange of air is concerned. At no time does the devitalized air come in contact with the fresh air or oxygen.

HOW THE LUNG MOTOR WORKS

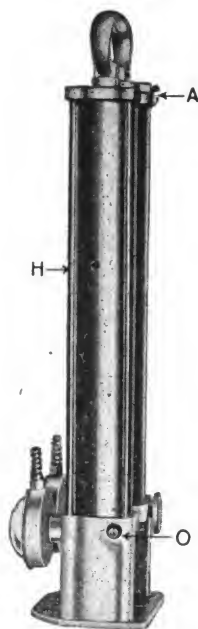
The LUNG MOTOR is a device to be used in all cases where artificial respiration is necessary. It consists of two cylinders, one for inhalation, one for exhalation. The valve arrangement in the base of the LUNG MOTOR automatically regulates pressure, thus making it impossible under any condition to rupture the delicate lung tissue. It is possible, with the LUNG MOTOR, to deliver the exact volume of air necessary to maintain the circulation and respiration over a long period of time. One of the most important features, when used in cases of apparent drowning, is that it will remove instantly and positively the large quantities of slime, mucus and blood that accumulate in the air passages, thus making it possible for the air to be delivered to the lungs which is not always possible when the Schafer method is used.

The LUNG MOTOR consists of two cylinders which operate in unison, yet not connected in any way as far as the interchange of air is concerned. At no time does the divitalized air come in contact with the pure air and oxygen.

An upward movement of the handle charges the inspiration cylinder with pure air or any mixture of air and oxygen desired, according to the setting of the mixing valve (b). At the same time the expiration cylinder is filled with the expired air gently expelled from the lungs by the patient due to the natural contractual power of the chest walls and the elasticity of the lungs.



INSPIRATION SIDE and BACK VIEW—showing (A) volume gauge slide pin, (P) pointer for gauge slide pin, (B) air and oxygen mixing valve, (D) air inlet, (C) oxygen inlet (E) inspiration cylinder, (H) expiration cylinder.



SIDE VIEW—showing expiration outlet (O), expiration cylinder (H), volume gauge slide pin (A) which regulates the volume of air put into the lung from the largest adult to the smallest infant.

Conversely the following downward movement of the pump handle and piston places the air or the mixture of air and oxygen into the lungs and discharges the impure air through the outlet (o) into the atmosphere. In the case of drowning or new-born babies the water, blood, mucus, etc., is taken care of through the device and discharged at this opening (o).

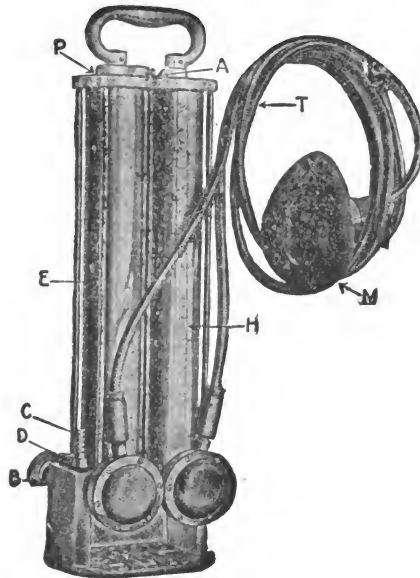
Thus you see that at every complete stroke of the handle up and down you have a complete respiration, an inspiration, and an expiration—normal breathing mechanically done.

To make the LUNG MOTOR available for persons of all ages and corresponding varying lung capacities, it is provided with adjustments for different air volumes, suitable for new born, five year old, ten year old, fifteen year old, or small adult, average, and adult large. This range provides for all sizes of subjects.

The LUNG MOTOR does the very next thing to normal breathing because it supplies, mechanically, the tidal volume of air each respiration (the amount you breathe at rest), enough air, but not so much as to possibly injure the Lung tissues and the circulation, thus not leaving the patient liable to pneumonia following.

SIMPLICITY

. One of the great features of the LUNG MOTOR is the ease of operation. Anyone can operate the device. Being absolutely positive in its action, it is therefore foolproof. By the six simple adjustments to meet the six varying sizes of patients, it gives in each case the tidal volume of air or the amount they would naturally breathe.



All the operator does is to set the pin to the approximate size of the victim, cleanse mouth, pull out tongue, apply mask and operate the device. Simple, isn't it?. Nothing to watch but the patient. No excessive pressure, no suction action on the lung; always the right amount of air each stroke—absolutely safe. There is no danger of pumping too fast, as the rhythm of pumping will drop naturally within the first minute to the rhythm of natural breathing. Should you by intention pump rapidly, only a more rapid exchange of air would take place in the lungs—a condition similar to fast breathing after a run or a walk upstairs.

The simplicity of the LUNG MOTOR and the ease of operation are evident at a glance.

You can judge a great deal from the illustration, but to really appreciate the LUNG MOTOR one must see it. There are only eight movable parts, and all non-corrosive metal. Remember, only three things to do with the LUNG MOTOR on a case: Set the pin, apply the mask, and pump. Mighty simple, with almost unbelievable results.

LUNG MOTOR VERSUS MANUAL METHODS

It is not the presence of carbon dioxide which causes death, but rather the absence of oxygen. The mouth, the trachea and the larger bronchial tubes are filled with water and slimy mucus.

In order to resuscitate a person who is apparently drowned, it is necessary that this water and mucus be removed from the mouth, trachea and bronchial tubes, and that those passages be kept clear, in order that air may be introduced into the lungs, where oxygen in the air can be absorbed by the blood and in order that the foul gases may be expelled from the lungs.

This should be done with the least possible traumatism to an apparently drowned individual. The air introduced and expelled from the lung must be in sufficient amounts to maintain life. The following table will show that the exchange of air secured by manual methods, under the most favorable conditions, where there is no obstruction in the mouth or bronchial tubes, is dangerously near a minimum, when the maintaining of life is considered. The table also shows that where LUNG MOTOR Method of resuscitation are used, the apparently drowned individual has introduced into his lungs the same amount of air which he normally breathes, namely, 35.43 cubic inches, or about 750 cubic centimeters.

Subject	Schaefer Method	Sylvester Method	Lungmotor
In apnoe.	125-200 C. C.	150-200 C. C.	750 C. C.
Normal	500-600 C. C.	500-600 C. C.	750 C. C.

There are .061 C. C. in one cubic inch.

The extra 150 C. C. given by the LUNG MOTOR is to compensate for the natural contraction of the lung capacity in cases of suspended or impaired respiration and thereby maintaining the normal statics (pressures) within the thorax which are so necessary to the continued maintenance of coronary blood pressure.

The above table shows that with a LUNG MOTOR it is possible to give an apparently drowned individual a sufficient amount of air to maintain life, and that with the manual methods this cannot be accomplished.

We have now to consider how this air can be introduced and removed from the lung. The gross water and the slimy mucus in the bronchial tubes of an apparently drowned individual must be removed. The gross water may be removed by the Schaefer method of artificial respiration, in the quickest possible manner. It is a regrettable fact that this method will only remove the gross water, leaving the lungs filled with slimy mucus, which interferes with the introduction of air into and the removal of air from the lungs of the patient.

In fact, this is one reason why apparently drowned individuals, who are recovered almost immediately from the water when the accident occurs, cannot be resuscitated by manual methods.

The mucus and slime can be removed only by the LUNG MOTOR. When this gross water and mucus have been removed, there is then no obstruction to the introduction of air into and the expelling of air from the lungs.

The danger of rupturing the liver or of fracturing a rib, which may occur when the Schaefer or Silvester method is being used, is entirely eliminated with the LUNG MOTOR. That these regrettable accidents occur where manual methods are used, although rarely, is sufficient reason for the substitution of mechanical means for inducing artificial respiration.

Where manual methods are used, the normal pressures within the thoracic cavity cannot be maintained. The suction action of the thorax on the heart and great vessels is not sufficient to establish any thing but the faintest ebb and flow of the blood. This can hardly be considered an artificial circulation.

The maintaining or reestablishing of the suction action of the thorax on the heart and great vessels by the LUNG MOTOR, thereby maintaining the normal pressures within the thoracic cavity, is the means by which it establishes an artificial circulation, facilitating the flow of blood through the heart and lungs, and as a consequence, raising arterial blood pressure, increasing the blood in the coronary arteries and forcing a larger supply of blood to the brain centers, thereby facilitating the resuscitation of the brain centers and establishing the automatic, synchronous action of the heart.

HINTS ON CARE OF THE APPARENTLY DROWNED

Send for the doctor.

Promote warmth and circulation, friction toward the heart. (Daniels.)

Patient should be kept in bed and sleep encouraged.

Watch for secondary asphyxia. If this occurs proceed to restore the patient the second time.

If in house open the windows, let patient get fresh air.

Do not let people crowd around patient.

SEND FOR LUNG MOTOR.

Start Manual Methods until LUNG MOTOR arrives.

Do not move patient too much.

Do not allow patient to walk after resuscitation for twenty minutes at least.

Keep patient warm as possible.

SAFETY SUGGESTIONS

Cities, communities, villages, etc. should provide attractive beaches for swimming,—easily accessible and large enough to accommodate all who wish to enjoy the privilege. Safety Committees should be appointed and Live Saving Corps organized by good swimmers thoroughly trained in the various methods of rescue and resuscitation. Older men can map out the campaign,—map out the safety work and designate and assign the actual work to the younger boys, giving them a duty they will thoroughly enjoy and appreciate.

The prevention of drowning accidents is of tremendous importance. A survey of the beach, locating all dangerous holes, drops, etc., and having these indicated by permanent buoys or signs, can be accomplished at a very little cost and will aid materially in reducing accidents.

Every beach should be made safe by providing buoys or signs indicating exact depth of water, location of dangerous rocks, sand-bars, etc. To the local residents these hazards are familiar; to the stranger, many times, it means a serious accident or even a fatality.

The swim directly after meals, or by persons who have bad hearts, or are subject to epileptic convulsions, should be entirely discouraged. Drowning as a result of cramps has been overestimated in nearly every case reported. Cramps in the arms or legs do not cause good swimmers to drown. Poor swimmers often become excited when seized with cramps, lose their heads and take in considerable water, choke, and the result is complete submersion and drowning. When a person is seized with general body cramps, then he is helpless. He becomes semi-conscious, although he struggles until asphyxia produces complete unconsciousness.

Such practices as teaching people to swim by throwing into deep water; going up behind swimmers on piers or swing-boards and pushing them into the water; the rocking of boats; the calling for help unnecessarily; shooting of rapids and other hazardous undertakings, should be discouraged. In fact, the practice should be condemned. Many deaths are caused by diving, producing fractured skulls, concussion of the brain and broken necks. These usually occur in unknown waters, where spiles or rocks or sand-bars are beneath the surface unknown to the swimmers.

Swimming and out-door bathing is dangerous only in proportion to the lack of knowledge and carelessness of the individual. We are all familiar with the old saying "locking the barn door after the horse is stolen." Depending upon someone else to provide protection without your personal assistance will not result in action. Everyone's responsibility is the responsibility of no one. You realize, therefore, that the responsibility rests with each individual, and when a death that could have been prevented occurs in your locality, every individual is morally guilty if the question of protection has been ignored.

It is just as important that your community be protected against death from drowning, asphyxiation from gases, smoke, fumes, electric shock, etc., as it is to protect your property from fire. Surely you will all agree that human life is worth more than physical property. You can replace property, you cannot replace life.

Additional copies of this booklet gladly mailed on request

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